

What is claimed is:

1 1. A display apparatus drive circuit having a phase adjustment
2 circuit in a driver for driving a display apparatus based on
3 inputted clock and data, said phase adjustment circuit
4 comprising:

5 a first synchronous delay circuit for adjusting a duty of
6 said inputted clock and outputting it as a first clock,

7 a second synchronous delay circuit for delaying said
8 adjusted clock by a predetermined delay amount and outputting
9 it as a second clock,

10 a first holding circuit for holding and outputting said
11 data in response to said first clock, and

12 a second holding circuit for holding and outputting the
13 data outputted from said first holding circuit in response to
14 said second clock.

1 2. The display apparatus drive circuit according to claim 1,
2 wherein said phase adjustment circuit comprises a third holding
3 circuit for holding and outputting a start pulse in response
4 to said first clock and a fourth holding circuit for holding
5 and outputting the start pulse outputted from said third holding
6 circuit in response to an inversion signal of said first clock.

1 3. The display apparatus drive circuit according to claim 1,
2 wherein said driver further comprises a data latch circuit for
3 operating in response to the data outputted from said phase
4 adjustment circuit and said first clock signal.

1 4. The display apparatus drive circuit according to claim 1,
2 wherein said first synchronous delay circuit outputs said
3 inputted clock by setting its duty ratio at 50 percent.

1 5. The display apparatus drive circuit according to claim 2,
2 wherein said second synchronous delay circuit outputs said first
3 clock by delaying it by $\pi/2$.

1 6. The display apparatus drive circuit according to claim 5,
2 wherein said data latch circuit takes in data on a leading edge
3 and a trailing edge of said first clock.

1 7. The display apparatus drive circuit according to claim 6,
2 wherein said data latch circuit comprises a selector circuit
3 for alternately outputting the data latched on said leading edge
4 of said first clock and the data latched on said trailing edge
5 thereof.

1 8. A display apparatus drive circuit having a plurality of
2 drivers for driving a display apparatus based on inputted clock
3 and data, each of said plurality of drivers comprising:
4 a first synchronous delay circuit for adjusting a duty ratio
5 of the inputted clock and outputting it as a first clock,
6 a second synchronous delay circuit for delaying said first
7 clock by a predetermined delay amount and outputting it as a
8 first delay clock,

9 a first phase adjustment circuit for holding and outputting
10 the data inputted based on said first clock and said first delay
11 clock,

12 a latch circuit for holding said held and outputted data
13 in response to said first clock,

14 a third synchronous delay circuit for readjusting the duty
15 ratio of said first clock and supplying it as a second clock
16 to a next-stage driver,

17 a fourth synchronous delay circuit for delaying said second
18 clock by the predetermined delay amount and outputting a second
19 delay clock, and

20 a second phase adjustment circuit for holding the data
21 inputted based on said second clock and said second delay clock
22 and outputting the held data to said next-stage driver.

1 9. The display apparatus drive circuit according to claim 8,
2 further comprising a latch circuit for latching a start pulse
3 in response to said first clock.

1 10. The display apparatus drive circuit according to claim 8,
2 wherein it comprises a first latch circuit for latching and
3 outputting the data inputted in response to said first clock
4 and said first delay clock.

1 11. The display apparatus drive circuit according to claim 10,
2 wherein it comprises a second latch circuit for latching and
3 outputting the data inputted in response to said second clock
4 and said second delay clock.